

# FILE NOTATIONS

Entered in NID File

☒

Entered On S R Sheet

☒

Location Map Pinned

☒

Card Indexed

☒

IWR for State or Fee Land

☐

Checked by Chief

☒

Copy NID to Field Office

☒

Approval Letter

☒

Disapproval Letter

☐

## COMPLETION DATA:

Date Well Completed

9-15-59

Location Inspected

12-7-59

CW

VW

TA

Bond released

EW

GS

PA ☒

State of Fee Land

☐

## LOGS FILED

Driller's Log

9-29-59

Electric Logs (No. 1)

3

E

L

EN

GR

GRN

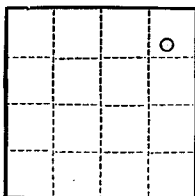
Micro

Est

Mit

Seis

Others



(SUBMIT IN TRIPLICATE)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Land Office **Salt Lake City**

Lease No. **067697**

Unit **Hatch**

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....	<input checked="" type="checkbox"/>	SUBSEQUENT REPORT OF WATER SHUT-OFF.....	
NOTICE OF INTENTION TO CHANGE PLANS.....		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....		SUBSEQUENT REPORT OF ALTERING CASING.....	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL.....		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR.....	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....		SUBSEQUENT REPORT OF ABANDONMENT.....	
NOTICE OF INTENTION TO PULL OR ALTER CASING.....		SUPPLEMENTARY WELL HISTORY.....	
NOTICE OF INTENTION TO ABANDON WELL.....			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

July 13, 1959

Well No. **1** is located **990** ft. from **[N]** line and **790** ft. from **[E]** line of sec. **25**

**NE Sec. 25** (1/4 Sec. and Sec. No.) **38S** (Twp.) **22E** (Range) **81W** (Meridian)  
**Wildcat** (Field) **San Juan** (County or Subdivision) **Utah** (State or Territory)

The elevation of the ~~surface~~ <sup>ground</sup> above sea level is **4916.3** ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

It is proposed to drill a 6100' well at the above location to test the Paradox "A"<sub>2</sub> zone (Lammy). Moving of location from C NE NE Sec. 25 was necessary because of mine workings.

Proposed casing and procedure

13-3/8" @ 300' cemented to surface

Drill 9" hole to 1600'. If water sands present run and set 9-5/8" casing cemented with 150 sz.

Drill 8 1/4" hole to 7" @ 6100' approximately.

Core and test as indicated.

Run 5 1/2" casing or P&A as indicated.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company **UNION OIL COMPANY OF CALIFORNIA**

Address **444 Sherman Street**

**Denver 3, Colorado**

By *R. S. Cooke*  
**R. S. Cooke**

Title **Acting Division Superintendent**

COMPANY THE UNION OIL COMPANY

Well Name & No.

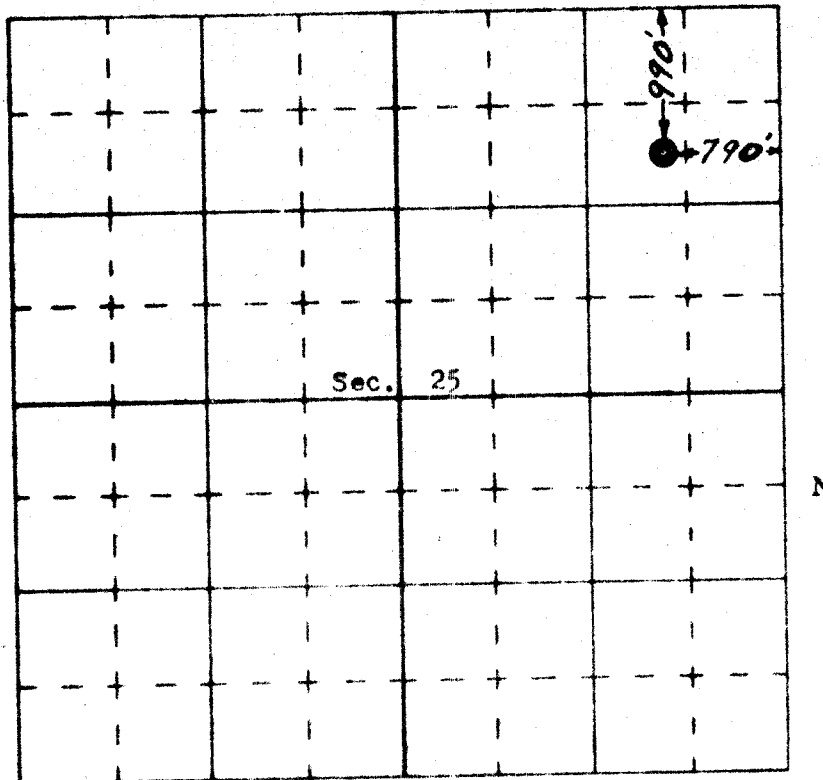
Lease No.

Location 990' FROM THE NORTH LINE & 790' FROM THE EAST LINE

Being in SW NE NE

Sec. 25, T 38S, R 22E, S.L.M., SAN JUAN COUNTY, UTAH

Ground Elevation 4916.3' ungraded ground



Scale — 4 inches equals 1 mile

Surveyed 9 July

19 59

This is to certify that the above plat was prepared from field notes of actual surveys made by me or under my supervision and that the same are true and correct to the best of my knowledge and belief.

*James P. Leese*

Registered Land Surveyor.

James P. Leese

Utah Reg. No. 1472

SAN JUAN ENGINEERING CO., FARMINGTON, NEW MEXICO

July 14, 1959

Union Oil Company of California  
444 Sherman Street  
Denver 3, Colorado

Attention: R. S. Cooke,  
Acting Division Superintendent

Gentlemen:

This is to acknowledge receipt of your notice of intention to drill Well No. Hatch Unit 1, which is to be located 990 feet from the north line and 790 feet from the east line of Section 25, Township 38 South, Range 22 East, SLEH, San Juan County, Utah.

Please be advised that insofar as this office is concerned approval to drill said well is hereby granted.

This approval terminates within 90 days if the above mentioned well is not spudded in within said period.

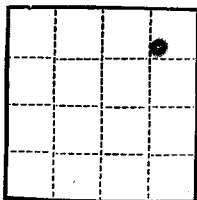
Yours very truly,

OIL & GAS CONSERVATION COMMISSION

CLEON B. FREIGHT  
EXECUTIVE SECRETARY

CBF:co

cc: P. T. McGrath, Dist. Eng.  
U. S. Geological Survey  
Farmington, New Mexico



(SUBMIT IN TRIPLICATE)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Land Office **Salt Lake City**

Lease No. **067497**

Unit **Hatch**

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL	<b>X</b>		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

**September 14**, 19**59**

Well No. **1** is located **990** ft. from **[N]** line and **790** ft. from **[E]** line of sec. **25**

**NE Sec. 25**

(¼ Sec. and Sec. No.)

**36 S**

(Twp.)

**22 E**

(Range)

**51M**

(Meridian)

**Wildcat**

(Field)

**San Juan**

(County or Subdivision)

**Utah**

(State or Territory)

The elevation of the ~~ground~~ **ground** above sea level is **4916.3** ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

It is proposed to plug and abandon the above well in the following manner:

Set 70 sz plug over interval	5700 to 5900
" 50 sz " " "	2950 to 3100
" 50 sz " " "	1450 to 1600
" 55 sz " " "	260 to 360

or over bottom of surface casing which is at 308'.

Hole between plugs will be left full of heavy mud.

Verbal approval for above intervals given to Mr. Ken Fox, Union Oil Engineer, by Mr. McGrath, U.S.G.S., on Sept. 12, 1959. Subsequently reaffirmed by Mr. R. A. Higgins through Mr. Long as of Sept. 14, 1959.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company **Union Oil Company of California**

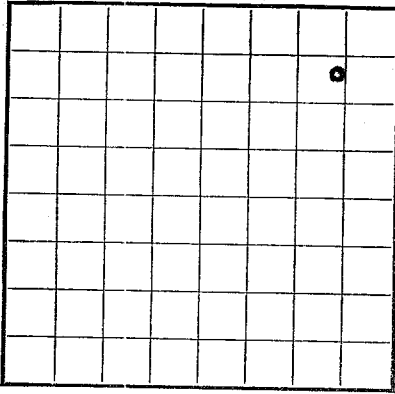
Address **444 Sherman Street**

**Denver 3, Colorado**

By **R. A. Higgins**

Title **Division Superintendent**

**Salt Lake City**  
U. S. LAND OFFICE  
SERIAL NUMBER **067697**  
LEASE OR PERMIT TO PROSPECT



LOCATE WELL CORRECTLY

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

## LOG OF OIL OR GAS WELL

Company **Union Oil Company of California** Address **444 Sherman Street, Denver, Colo.**  
Lessor or Tract **Gov't 697** Field **Wildcat** State **Utah**  
Well No. **1** Sec. **35** T. **38S.** R. **22E.** Meridian **Salt Lake** County **San Juan**  
Location **990** ft. **XX** of **N** Line and **790** ft. **XX** of **E** Line of **Sec. 35** Elevation **4925.65 RT**  
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed

*R. A. Higgins*Date **September 23, 1959**Title **Division Superintendent**

The summary on this page is for the condition of the well at above date.

Commenced drilling **8-6-59**, ~~xxx~~ Finished drilling **9-15-59**, ~~xxx~~

## OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from \_\_\_\_\_ to \_\_\_\_\_ No. 4, from \_\_\_\_\_ to \_\_\_\_\_  
No. 2, from \_\_\_\_\_ to \_\_\_\_\_ No. 5, from \_\_\_\_\_ to \_\_\_\_\_  
No. 3, from \_\_\_\_\_ to \_\_\_\_\_ No. 6, from \_\_\_\_\_ to \_\_\_\_\_

## IMPORTANT WATER SANDS

No. 1, from \_\_\_\_\_ to \_\_\_\_\_ No. 3, from \_\_\_\_\_ to \_\_\_\_\_  
No. 2, from \_\_\_\_\_ to \_\_\_\_\_ No. 4, from \_\_\_\_\_ to \_\_\_\_\_

## CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated		Purpose
							From—	To—	
<b>13-3/8"</b>	<b>48#</b>	<b>8</b>	<b>Pittsburg</b>	<b>308.23'</b>	<b>Larkin Reg.</b>				<b>Surface</b>

## MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
<b>13-3/8"</b>	<b>308.23'</b>	<b>250</b>	<b>Displacement</b>		<b>46.5 bbl.</b>

## PLUGS AND ADAPTERS

Heaving plug—Material ..... Length ..... Depth set .....

Adapters—Material ..... Size .....

## SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

## TOOLS USED

Rotary tools were used from **Surface** feet to **6125'** feet, and from ..... feet to ..... feet

Cable tools were used from ..... feet to ..... feet, and from ..... feet to ..... feet

## DATES

~~August 6~~ ....., 19 ~~59~~ Put to producing ~~P&A~~ **September 15** ....., 19 ~~59~~

The production for the first 24 hours was ..... barrels of fluid of which .....% was oil; .....% emulsion; .....% water; and .....% sediment. Gravity, °Bé. ....

If gas well, cu. ft. per 24 hours ..... Gallons gasoline per 1,000 cu. ft. of gas .....

Rock pressure, lbs. per sq. in. ....

## EMPLOYEES

....., Driller ..... Driller

....., Driller ..... Driller

## FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
<b>Surface</b>	<b>593</b>	<b>593</b>	<b>Morrison</b>
<b>593</b>	<b>707</b>	<b>114</b>	<b>Bluff ss.</b>
<b>707</b>	<b>780</b>	<b>73</b>	<b>Summerville</b>
<b>780</b>	<b>937</b>	<b>157</b>	<b>Entrada</b>
<b>937</b>	<b>1500</b>	<b>563</b>	<b>Navajo</b>
<b>1500</b>	<b>1680</b>	<b>180</b>	<b>Kayenta</b>
<b>1680</b>	<b>1924</b>	<b>244</b>	<b>Wingate</b> <b>Triassic</b>
<b>1924</b>	<b>2682</b>	<b>758</b>	<b>Chinle</b>
<b>2682</b>	<b>2740</b>	<b>58</b>	<b>Shinarump</b>
<b>2740</b>	<b>3053</b>	<b>313</b>	<b>Moenkopi</b>
<b>3053</b>	<b>3170</b>	<b>117</b>	<b>DeChelly</b> ) <b>Permian</b>
<b>3170</b>	<b>3700</b>	<b>530</b>	<b>Organ Rock</b> ) <b>Cutler group</b>
<b>3700</b>	<b>4896</b>	<b>1196</b>	<b>Cutler evaporites)</b>
<b>4896</b>	<b>5824</b>	<b>928</b>	<b>Hermosa</b> <b>Pennsylvanian</b>
<b>5824</b>	<b>5962</b>	<b>138</b>	<b>Bluff (A zone)</b>
<b>5962</b>	<b>6052</b>	<b>90</b>	<b>Lamy (A-2 zone)</b>
<b>6052</b>	<b>6135</b>	<b>83</b>	<b>Desert Creek (B zone)</b>
<b>6135</b>	<b>6181 TD</b>	<b>46+</b>	<b>Paradox</b>
	<b>E.Log</b>		

[OVER]

16-43094-4

FORMATION RECORD—CONTINUED

SEP 29 1959

# FORMATION RECORD—Continued

FROM—	TO—	TOTAL FEET	FORMATION
			<b>DST #1, 5929-6009'</b> Open 5 min., shut in 30 min., open 1 hr., shut in 30 min. No blow. Rec. 6' drlg. mud. IHP 323#, ISIP 60#, IFF 60#, FFF 60#, FSIP 60#, FHP 3185#.
			<b>DST #2, 6070-6175'</b> Open 5 min., closed 55 min., open 1 hr., closed 30 min. Rec. 15' drlg. mud. IHP 3140#, ISIP 165#, IFF 27#, FFF 27#, FSIP 42#, FHP 3132#.
5100	5130	30	
5095	5125	30	
5090	5120	30	
5085	5115	30	
5080	5110	30	
5075	5105	30	
5070	5100	30	
5065	5095	30	
5060	5090	30	
5055	5085	30	
5050	5080	30	
5045	5075	30	
5040	5070	30	
5035	5065	30	
5030	5060	30	
5025	5055	30	
5020	5050	30	
5015	5045	30	
5010	5040	30	
5005	5035	30	
5000	5030	30	
4995	5025	30	
4990	5020	30	
4985	5015	30	
4980	5010	30	
4975	5005	30	
4970	5000	30	
4965	4995	30	
4960	4990	30	
4955	4985	30	
4950	4980	30	
4945	4975	30	
4940	4970	30	
4935	4965	30	
4930	4960	30	
4925	4955	30	
4920	4950	30	
4915	4945	30	
4910	4940	30	
4905	4935	30	
4900	4930	30	
4895	4925	30	
4890	4920	30	
4885	4915	30	
4880	4910	30	
4875	4905	30	
4870	4900	30	
4865	4895	30	
4860	4890	30	
4855	4885	30	
4850	4880	30	
4845	4875	30	
4840	4870	30	
4835	4865	30	
4830	4860	30	
4825	4855	30	
4820	4850	30	
4815	4845	30	
4810	4840	30	
4805	4835	30	
4800	4830	30	
4795	4825	30	
4790	4820	30	
4785	4815	30	
4780	4810	30	
4775	4805	30	
4770	4800	30	
4765	4795	30	
4760	4790	30	
4755	4785	30	
4750	4780	30	
4745	4775	30	
4740	4770	30	
4735	4765	30	
4730	4760	30	
4725	4755	30	
4720	4750	30	
4715	4745	30	
4710	4740	30	
4705	4735	30	
4700	4730	30	
4695	4725	30	
4690	4720	30	
4685	4715	30	
4680	4710	30	
4675	4705	30	
4670	4700	30	
4665	4695	30	
4660	4690	30	
4655	4685	30	
4650	4680	30	
4645	4675	30	
4640	4670	30	
4635	4665	30	
4630	4660	30	
4625	4655	30	
4620	4650	30	
4615	4645	30	
4610	4640	30	
4605	4635	30	
4600	4630	30	
4595	4625	30	
4590	4620	30	
4585	4615	30	
4580	4610	30	
4575	4605	30	
4570	4600	30	
4565	4595	30	
4560	4590	30	
4555	4585	30	
4550	4580	30	
4545	4575	30	
4540	4570	30	
4535	4565	30	
4530	4560	30	
4525	4555	30	
4520	4550	30	
4515	4545	30	
4510	4540	30	
4505	4535	30	
4500	4530	30	
4495	4525	30	
4490	4520	30	
4485	4515	30	
4480	4510	30	
4475	4505	30	
4470	4500	30	
4465	4495	30	
4460	4490	30	
4455	4485	30	
4450	4480	30	
4445	4475	30	
4440	4470	30	
4435	4465	30	
4430	4460	30	
4425	4455	30	
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4415	4445	30	
4410	4440	30	
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4400	4430	30	
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4340	4370	30	
4335	4365	30	
4330	4360	30	
4325	4355	30	
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4310	4340	30	
4305	4335	30	
4300	4330	30	
4295	4325	30	
4290	4320	30	
4285	4315	30	
4280	4310	30	
4275	4305	30	
4270	4300	30	
4265	4295	30	
4260	4290	30	
4255	4285	30	
4250	4280	30	
4245	4275	30	
4240	4270	30	
4235	4265	30	
4230	4260	30	
4225	4255	30	
4220	4250	30	
4215	4245	30	
4210	4240	30	
4205	4235	30	
4200	4230	30	
4195	4225	30	
4190	4220	30	
4185	4215	30	
4180	4210	30	
4175	4205	30	
4170	4200	30	
4165	4195	30	
4160	4190	30	
4155	4185	30	
4150	4180	30	
4145	4175	30	
4140	4170	30	
4135	4165	30	
4130	4160	30	
4125	4155	30	
4120	4150	30	
4115	4145	30	
4110	4140	30	
4105	4135	30	
4100	4130	30	
4095	4125	30	
4090	4120	30	
4085	4115	30	
4080	4110	30	
4075	4105	30	
4070	4100	30	
4065	4095	30	
4060	4090	30	
4055	4085	30	
4050	4080	30	
4045	4075	30	
4040	4070	30	
4035	4065	30	
4030	4060	30	
4025	4055	30	
4020	4050	30	
4015	4045	30	
4010	4040	30	
4005	4035	30	
4000	4030	30	
3995	4025	30	
3990	4020	30	
3985	4015	30	
3980	4010	30	
3975	4005	30	
3970	4000	30	
3965	3995	30	
3960	3990	30	
3955	3985	30	
3950	3980	30	
3945	3975	30	
3940	3970	30	
3935	3965	30	
3930	3960	30	
3925	3955	30	
3920	3950	30	
3915	3945	30	
3910	3940	30	
3905	3935	30	
3900	3930	30	
3895	3925	30	
3890	3920	30	
3885	3915	30	
3880	3910	30	
3875	3905	30	
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3860	3890	30	
3855	3885	30	
3850	3880	30	
3845	3875	30	
3840	3870	30	
3835	3865	30	
3830	3860	30	
3825	3855	30	
3820	3850	30	
3815	3845	30	
3810	3840	30	
3805	3835	30	
3800	3830	30	
3795	3825	30	
3790	3820	30	
3785	3815	30	
3780	3810	30	
3775	3805	30	
3770	3800	30	
3765	3795	30	
3760	3790	30	
3755	3785	30	
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3745	3775	30	
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3730	3760	30	
3725	3755	30	
3720	3750	30	
3715	3745	30	
3710	3740	30	
3705	3735	30	
3700	3730	30	
3695	3725	30	
3690	3720	30	
3685	3715	30	
3680	3710	30	
3675	3705	30	
3670	3700	30	
3665	3695	30	
3660	3690	30	
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3650	3680	30	
3645	3675	30	
3640	3670	30	
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3630	3660	30	
3625	3655	30	
3620	3650	30	
3615	3645	30	
3610	3640	30	
3605	3635	30	
3600	3630	30	
3595	3625	30	
3590	3620	30	
3585	3615	30	
3580	3610	30	
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3570	3600	30	
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3560	3590	30	
3555	3585	30	
3550	3580	30	
3545	3575	30	
3540	3570	30	
3535	3565	30	
3530	3560	30	
3525	3555	30	
3520	3550	30	
3515	3545	30	
3510	3540	30	
3505	3535	30	
3500	3530	30	
3495	3525	30	
3490	3520	30	
3485	3515	30	
3480	3510	30	
3475	3505	30	
3470	3500	30	
3465	3495	30	
3460	3490	30	
3455	3485	30	
3450	3480	30	
3445	3475	30	
3440	3470	30	
3435	3465	30	
3430	3460	30	
3425	3455	30	
3420	3450	30	
3415	3445	30	
3410	3440	30	
3405	3435	30	
3400	3430	30	
3395	3425	30	
3390	3420	30	
3385	341		



**UNION OIL COMPANY OF CALIFORNIA**

VAN HUMMELL BUILDING • 444 SHERMAN STREET

**DENVER 3, COLORADO**

September 28, 1959

Oil and Gas Conservation Commission  
310 Newhouse Bldg.  
10 Exchange Place  
Salt Lake City 11, Utah

Gentlemen:

Enclosed herewith are the following on our Gov't  
697 #1, Sec. 25, T. 38 S., R. 22 E., San Juan  
County, Utah:

- 1 copy U.S.G.S. Log of Oil or Gas Well
- 1 copy Schlumberger Induction-Electrical Log
- 1 copy Schlumberger MicroLog
- 1 copy Schlumberger Gamma Ray-Neutron Log

We believe this will complete your files on this  
well. If not, please advise.

Very truly yours,



R. A. Higgins  
Division Superintendent  
Rocky Mountain Division

RAH/bb

Enc.

MEMO TO THE COMMISSION

December 7, 1959

INFORMATION FOR FILES:

According to Jerry Long, U. S. Geological Survey engineer, in Durango, Colorado, the following well locations have been satisfactorily cleaned and bond release recommended:

Union Oil Company Hatch No. 1, Sec. 25, T. 38 S, R. 22 E; ✓  
St. Louis Car Company Utah Gov't 1, Sec. 34, T. 38 S, R. 18 E;  
Ohio Oil Company Murphy Navajo 1, Sec. 16, T. 43 S, R. 23 E;  
Skelly Oil Company Aneth No. 1, Sec. 6, T. 40 S, R. 24 E.

By HARVEY L. COONTS  
PETROLEUM ENGINEER

Rec: by co

OIL & GAS CONSERVATION COMMISSION  
OF THE STATE OF UTAH

DESIGNATION OF AGENT

The undersigned producer, operator, transporter, refiner, gasoline or initial purchaser who is conducting oil and/or gas operations in the State of Utah, does, pursuant to the Rules and Regulations, and Rules of Practice and Procedure of the Oil and Gas Conservation Commission of the State of Utah, hereby appoint, **C. T. Corporation System**, whose address is **175 South Main Street, Salt Lake City, Utah**, (~~his, her~~ or its) designated agent to accept and to be served with notices from said Commission, or from other persons authorized under the Oil and Gas Conservation Act of the State of Utah.

The undersigned further agrees to immediately report in writing, all changes of address of the agent, and any termination of the agent's authority, and in the latter case, the designation of a new agent or agents shall be immediately made. This designation of agent, however, shall remain in full force and effect until and unless a new designation agent is filed in accordance with said statute and said regulations.

Effective Date of Designation June 21, 1962.

Company CALIFORNIA UNION OIL COMPANY OF / Address Union Oil Building, Midland, Texas

By John Hansen Title Attorney in Fact  
(Signature) John Hansen  
R>J

# Union Oil Company of California

West Building

P. O. Box 1760

D U R A N G O

C O L O R A D O

June 26, 1962

State of Utah  
Oil and Gas Conservation Commission  
310 Newhouse Building  
10 Exchange Place  
Salt Lake City 11, Utah

Attention: Mr. Cleon B. Feight  
Executive Director and Secretary

RE: Designation of Agent  
State of Utah

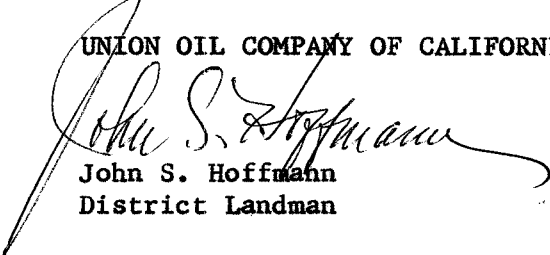
Gentlemen:

Enclosed is original and one copy of the Designation of Agent Form as required under Rule A-4 of the General Rules and Regulations and Rules of Practice and Procedure for the State of Utah. This Form is herewith submitted for filing in your Office and I trust that it has been satisfactorily completed. Should additional copies or additional information be required please advise.

We shall appreciate your acknowledging receipt of the enclosed at your convenience.

Yours very truly,

UNION OIL COMPANY OF CALIFORNIA

  
John S. Hoffmann  
District Landman

JSH:djb

Enclosure

Gov't 697 #1  
Wildcat  
South Blending Area  
San Juan County, Utah  
Sec. 25-38S-22E, SLM

UNION OIL COMPANY  
DRILLING REPORT

Casing  
13-3/8" C 308'

Elev.  
4927 RT (est.)

11351

Location: 990' S/N, 790' W/E Sec. 35,  
Township 38 South, Range 22 East, S.L.M.

Spud Date: August 6, 1959  
P&A: September 15, 1959  
Elevation: 4927.20 KB

Contractor: Great Western Drilling Company

U-15 w/3 LRI 600 engines

0-5067' Gardner Denver LXQ 6½"x16" pump  
from rig engines.

5067'-TD Emsco D500 6½"x16" pump from  
rig engines.

133' L.C.M. Mast. Shaffer double 10"  
series 900 B.O.P. 2-213 bbl. mud tanks.  
10' substructure.

Gov't 697 #1  
Wildcat  
South Blanding Area  
San Juan County, Utah  
Sec. 25-38S-22E, SLM

UNION OIL COMPANY  
DRILLING REPORT

Rotary Tools  
Great Western Drlg. Co.

Casing  
13-3/8" C 308'

Elev.  
4927 RT (est.)

Date 1959	Depths		Formation	Inclination		Remarks
	From	To		Depth	Ang.	
8-6	0	40	Sand	Totco		Spud in at 10:30 P.M. w/#1 H.T.C. 12½" OSC-3. Drld. to 40'. (worked 1½ hrs.)
8-7	40	240	Sand & shale	90 1/4° 130 1/4°		Drld. to 230' w/bit #1. Ran in w/bit #2 12½" H.T.C. OSC-1 & drld to 240'. Dropped & rec. 204' of collars.
8-8	240	315	Sand & shale	315 1/4°		Drld. to 315'. Ran in w/reamer #1 17½" and reamed to 288'.
8-9		315				Reamed 17½" hole to 315'.

Casing detail

Ran 10 jts. 13-3/8" 48# H-40 Pittsburg seamless ST&C csg. w/ Larkin guide shoe. Larkin reg. float collar on first jt. and 2 centralizers 10' and 99.57' above shoe. Landed 308.23 K.B.

Cemented csg. @ 308.23' w/250 sx neat cement w/2% CaCl<sub>2</sub>. Built pressure on plug to 800# & released. Float collar did not hold. Shut in cementing head. C.I.P. 8:40 A.M.  
Cement returns to surface.

Contractor installing new engines on draw works.

8-10		315				Finished installing engines. Installed 12" series 900 13-3/8" csg. flange & B.O.P.
8-11	315	1225	Sand & shale	706 1/2° 795 1/4° 1015 3/4°		Finished nipping up. Tested csg. @ 1000# O.K. Drld. out shoe @ 9:00 A.M. Top cmt. @ 263 Drld. w/bit #3 8-3/4" H.T.C. OSC-3 to 1225' using wtr & natural mud. Mud wt. 9.1, vis. 29.
8-12	1225	1939	Sand & shale	1400 1°		Drld. to 1492' w/bit #4. Ran in w/bit #5 8-3/4" H.T.C. OSC-3 & drld. to 1939'. Twisted off sub on drill collars & left 328' of drill collars & drlg assembly in hole. Ran in w/overshot, caught fish & started out of hole.
8-13	1939	2373	Sand & shale	2140 1°		Rec. fish. Ran in w/bit #6 8-3/4" H.T.C. OSC-3 & drld. to 2180'. Ran in w/bit #7 8-3/4" H.T.C. OSC-3 & drld. to 2373'.

Gov't 697 #1  
Wildcat  
South Blanding Area  
San Juan County, Utah  
Sec. 25-38S-22E, SLM

UNION OIL COMPANY  
DRILLING REPORT

Rotary Tools  
Great Western Drlg. Co.

Casing  
13-3/8" C 308'

Elev.  
4927 RT (est.)

Date	Depths		Formation	Inclination		Remarks
	From	To		Depth	Ang.	
1959						
8-14	2373	2800	Sand & shale	Totco		Drl'd. to 2485'. Ran in w/bit #8
				2480	1/2°	8-3/4" H.T.C. OSC-3 & drld. to
				2800	1°	2800'.
8-15	2800	3135	Sand & shale	3120	1°	Ran in w/bit #9 8-3/4" H.T.C. OSC-3 & drld. to 2972'. Ran in w/bit #10 8-3/4" H.T.C. OSC-3 & drld. to 3135'.
8-16	3135	3470	Sand & shale	3332	1/2°	Ran in w/bit #11 H.T.C. OSC-1G & drld. to 3332'. Ran in w/bit #12 8-3/4" H.T.C. OSC-1G & drld. to 3470'.
8-17	3470	3711	Sand & shale	3535	1/2°	Drl'd. to 3535'. Ran in w/bit #13
				3711	1/2°	8-3/4" H.T.C. OSC-3 & drld. to 3711'.
8-18	3711	3924	Sand & shale	3900	1/4°	Ran in w/bit #14 8-3/4" H.T.C. OSC-3 & drld. to 3813'. Ran in w/bit #15 8-3/4" H.T.C. OSC-3 & drld. to 3924'.
8-19	3924	4119	Sand & shale	3940	1/4°	Drl'd. to 3940'. Ran in w/bit #16 8-3/4" H.T.C. OSC-1G & drld. to 4119'.
8-20	4119	4220	Limestone, sand & shale	4200	1/2°	Ran in w/bit #17 8-3/4" H.T.C. OSC & drld. to 4220'.
8-21	4220	4363	Limestone, sand & shale	4325	3/4°	Ran in bit #18 8-3/4" H.T.C. OWV & drld. to 4363'.
8-22	4363	4504	Limestone & shale			Ran in bit #19 8-3/4" H.T.C. OWV & drld. to 4504'.
8-23	4504	4700	Limestone & shale	4508	3/4°	Drl'd. to 4525'. Ran in w/bit #20
				4660	3/4°	8-3/4" H.T.C. OWV & drld. to 4700'.
8-24	4700	4885	Limestone & shale	4885	3/4°	Ran in bit #21 8-3/4" H.T.C. OWV & drld. to 4885'.
8-25	4885	5028	Limestone & shale	5009	3/4°	Ran in w/bit #22 8-3/4" H.T.C. OWV & drld. to 5009'. Ran in w/bit #23 8-3/4" H.T.C. OWV & drld. to 5028'.
8-26	5028	5064	Limestone & shale			Drl'd. to 5064'. Worked on pump. Down time 13 hrs.

Gov't 697 #1  
Wildcat  
South Blanding Area  
San Juan County, Utah  
Sec. 25-38S-22E, SLM

UNION OIL COMPANY  
DRILLING REPORT

Rotary Tools  
Great Western Drlg. Co.

Casing  
13-3/8" C 308'  
Elev.  
4927 RT (est.)

Date	Depths		Formation	Inclination		Remarks
1959	From	To		Depth	Ang.	
8-27	5064	5144	Limestone & shale	Totco		Installed new pump. Down time 11 hrs. Ran in w/bit #24 8-3/4" H.T.C. OWC & drld. to 5144'.
8-28	5144	5273	Limestone & shale	5177	3/4°	Drld. to 5197'. Strapped pipe. Correct depth to 5201'. Ran in w/bit #25 8-3/4" H.T.C. OWC & drld. to 5273'.
8-29	5273	5377	Limestone & shale	5313	1/4°	Drld. to 5313'. Ran in w/bit #26 8-3/4" H.T.C. OWC & drld. to 5377'.
8-30	5377	5452	Limestone & shale	5382	1/2°	Drld. to 5382'. Ran in w/bit #27 18-3/4" H.T.C. OWC & drld. to 5452'.
8-31	5452	5536	Limestone & shale			Drld. to 5459'. Ran in w/bit #28 8-3/4" H.T.C. OWC & drld. to 5536'.
9-1	5536	5634	Limestone & shale			Ran in w/bit #29 8-3/4" H.T.C. OWC & drld. to 5625'. Pipe strap showed depth short - corrected depth to 5634'.
9-2	5634	5690	See core record			Ran in w/Christensen 5-3/4"x3-1/2" core barrel & 7-3/4" diamond core bit & cored to 5690'.
9-3	5690	5725	See core record			Continued coring to 5694'. Pulled Core #1. Ran in w/core barrel #2 & cored to 5725. Core barrel plugged. Pulled Core #2. Core #1 - cored 60' rec. 60'. Core #2 - cored 31' rec. 28'.
9-4	5725	5756	See core record			Ran in w/core barrel #3 & cored to 5756'.
9-5	5756	5761	See core record			Continued coring to 5758'. Pulled core #3. 5725-5758. Cored 33', rec. 33'. Ran Schlumberger Induction Electrical log 5758-308'. Ran in w/bit #30 7-7/8" H.T.C. OWC. Reamed 5634-5758' & drld. to 5761'.
9-6	5761	5845	Limestone & shale	5845	3/4°	Drld. to 5834'. Ran in w/bit #31 7-7/8" H.T.C. OWC & drld. to 5845'.



Gov't 697 #1  
Wildcat  
South Blanding Area  
San Juan County, Utah  
Sec. 25-38S-22E, SLM

UNION OIL COMPANY  
DRILLING REPORT  
  
Rotary Tools  
Great Western Drlg. Co.

Casing  
13-3/8" C 308'  
  
Elev.  
4927 RT (est.)

Date	Depths		Formation	Inclination		Remarks
	From	To		Depth	Ang.	
1959						
9-7	5845	5901	Limestone & shale	Totco 5900	3/4°	Drld. to 5900'. Ran in core barrel #4 w/Christensen 5-3/4"x 3-1/2" core barrel & 7-3/4" diamond core bit & cored to 5901'.
9-8	5901	5932	See core record			Cored to 5932'.
9-9	5932	5958	See core record  Limestone & shale			Cored to 5936'. Pulled core #4. 5900-5936'. Cored 36' rec. 33'. Ran in w/bit #32 7-7/8" H.T.C. W-7 & reamed & drld. to 5958'.
9-10	5958	6001	Limestone & shale			Drld. to 5972'. Ran in w/bit #33 7-7/8" H.T.C. W-7 & drld. to 6001'.
9-11	6001	6021	Limestone & shale	6009	3/4°	Drld. to 6009'. Ran in w/Halliburton drill stem tester & set packers at 5923 & 5929' w/ 80' of tail pipe.
DST #1 5929-6009' Set packers at 1:15 A.M. Tool open 5 min. shut in 30 min. Open 1 hr. shut in 30 min. No blow. Rec. 6' drlg. mud. HP 3235-3185 SIP 60-60 FP 60-60  Ran in w/bit #34 7-7/8" H.T.C. OWC & drld. to 6021'.						
9-12	6021	6121	Limestone & shale			Drld. to 6101'. Ran in w/bit #35 7-7/8" H.T.C. W7 & drld. to 6121'.
9-13	6121	6175	Limestone, shale & anhydrite			Drld. to 6175' TD. Ran Schlumberger Induction-Electrical, Gamma Ray-Neutron & MicroLog surveys.
9-14	6175	Plug 1450				Ran in w/Halliburton drill stem tester & set packers at 6065 & 6070' w/105' tail pipe.

DST #2 6070-6175' Set packers at 5:03 A.M.  
Tool open 5 min., closed 55 min., open 1 hr.,  
closed 30 min. Rec. 15' drlg. mud. Had light  
blow at beginning to dead in 30 min.  
    HP 3140-3132  
    SIP T65-42  
    FP 27-27

Gov't 697 #1  
Wildcat  
South Blanding Area  
San Juan County, Utah  
Sec. 25-38S-22E, SLM

UNION OIL COMPANY  
DRILLING REPORT

Rotary Tools  
Great Western Drlg. Co.

Casing  
13-3/8" C 308'  
Elev.  
4927 RT (est.)

Date	Depths		Inclination		Remarks
<u>1959</u>	<u>From</u>	<u>To</u>	<u>Formation</u>	<u>Depth</u> <u>Ang.</u>	
9-14					Ran in w/open end drill pipe &
cont.					cmt. as follows:

5900-5700' w/74 sx. neat cmt. displaced w/81 bbl. mud

3100-2950' w/62 sx. neat cmt. displaced w/42 bbl. mud

1600-1450' w/62 sx. neat cmt. displaced w/20 bbl. mud

9-15 6175 Plug 360-260' w/57 sx. neat cmt. displaced w/4 bbl. mud  
SurfaceCmt. surf. w/20 sx. neat cmt. Installed dry hole marker. Rig  
released 9:00 A.M. 9-15-59 (Worked 9 hrs.)

Elevations:	Top Cellar	4916.30'
	Rotary Table	4925.65'
	Kelly Bushing	4927.20'

Depth Measurements:

All depths measured from top Kelly Bushing.

Kenneth S. Fox, Engineer

UNION OIL COMPANY OF CALIFORNIA  
GOVERNMENT 697 #1  
CORE DESCRIPTION

CORE #1	5634-5694'	Cored 60' - Recovered 60'
Shale	5634-5644	Shale. Dark gray-green. Dense, highly calcareous.
Mudstone	5644-5647	Mudstone. Dark gray-green. Dense, massive, highly calcareous.
Shale	5647-5649	Shale. Dark gray-green. Dense, highly calcareous.
Limestone	5649-5658	Limestone. Gray-green, crypto-grained. Dense, massive, argillaceous.
Mudstone	5659-5661	Mudstone. Dark gray-green. Dense, massive, calcareous.
Limestone	5661-5694	Limestone. Gray-green to gray-brown, crypto-grained. Dense, massive, argillaceous.
CORE #2	5694-5725'	Cored 31' - Recovered 28'
Limestone	5694-5718	Limestone. Gray-brown grading to dark brownish black, crypto-grained. Dense, massive, argillaceous.
Mudstone	5718-5725	Mudstone. Dark gray-brown to black. Slightly fissile. Dense, calcareous.
CORE #3	5725-5758'	Cored 33' - Recovered 33'
Limestone	5725-5731	Limestone. Dark gray-brown to black, crypto-grained, matrix, stylolitic, fossiliferous (crinoid and fusuline fragments), argillaceous and dark black towards base. Inclusions of black cherty shale near top.
Limestone	5731-5733.3	Limestone. Dark gray-brown. Crypto-grained, inclusion of gray chert at top. Hairline fractures rare (grades into next unit color break).
Limestone	5733.3-5738.8	Limestone. Dark gray-brown, crypto-grained. Dense, fossiliferous (crinoid and fusuline), intermittently lineated with zones of silt. Stylolitic near top, fossils increasing towards base.
Limestone	4738.8-5754.3	Limestone. Light gray-brown, crypto-grained. Massive, dense, argillaceous. Rare vertical fractures near base.
Limestone	5754.3-5758	Limestone. Dark gray-brown, crypto-grained, argillaceous. Rare vertical hairline fractures upper foot, rare chert inclusions. Bottom badly broken.

CORE #4	5900-5936'	Cored 36' - Recovered 33'
Limestone	5900-5903	Limestone. Dark gray-black, crypto-grained. Dense, argillaceous.
Limestone	5903-5923	Limestone. Dark gray-black crypto-grained matrix. Dense, fossiliferous (crinoid stems and fusulines). (Gas odor on fresh break).
Limestone	5923-5936	Limestone. Dark gray-black, crypto-grained. Dense, stylolitic, rare thin shale breaks. Fossil debris, rare fractures. Occasional zone of rare anhydrite. (Good gas odor on fresh break. Dead oil residue at 5926'.)

UNION OIL COMPANY of CALIFORNIA  
GOVERNMENT 697-1

NE  $\frac{1}{4}$  Section 25-38S-22E

San Juan County, Utah

Elevation: 4927 K.B.  
4916 G.L.

The lithologic types are listed by percentage  
and by relative abundance within each group.

---

- 320- 360 95% Cement; 4% Shale black dense and mudstone pink with embedded coarse quartz grains. 1% Loose medium to coarse quartz grains and sandstone white very fine grained subrounded, well sorted.
- 360- 400 90% Sandstone cream to buff; fine grained, subrounded fair sorting, clay matrix. 10% Shale black dense; mudstone pink; siltstone light gray; mudstone brick reddish purple.
- 400- 450 70% Mudstone brick reddish purple; shale black dense; mudstone light gray silty. 30% Sandstone buff very fine to fine grained.
- 450- 620 65-85% Sandstone buff to cream, fine to medium grained, subrounded, fair sorting, clay matrix. 15-35% Mudstone brick reddish purple, shale black dense, mudstone light gray silty with increase in amount of black shale at 580'.
- 522 Elog Top Bluff Sandstone no sample break.
- 620- 650 60-70% Shale dark gray to black, siltstone light gray mudstone brick reddish purple. 30-40% Sandstone buff very fine grained rounded to subrounded well sorted, clay matrix, Sandstone cream buff medium to coarse grained subrounded fair sorting.
- 650- 670 Equal amounts of the above lithology with slight increase in coarse well rounded quartz grains.
- 670- 710 60-80% Shales as above. 40-20% Sands as above at 680 first siltstone whitish gray in samples.
- 710- 730 80% Sands as above. 20% Shales as above.
- 710 Elog Top Summerville

730- 740 60% Sandstone orange fine to medium grained subrounded fair sorting plus sands as above. 40% Shales as above.

740-760 60% Mudstone brick red, mudstone brick reddish purple, mudstone light buff pink, claystone light green. 40% Sands as above.

740 Sample Top Summerville.

760- 780 85% Shale dark gray to black, shale gray with faint lineations, mudstone light gray silty; mudstone brick red, siltstone olive with hematite? Staining. 15% Sandstone white to buff fine to medium grained subrounded fair sorting clay and silt matrix in part.

780- 830 80-95% Sands as above. 20-5% Shales as above.

780 Elog and sample top of Entrada

830- 880 70-80% Sandstone light orange pink fine grained rounded to subrounded well sorted, slight clay matrix with increase of loose medium sizes quartz grains at 860. 20-30% Mudstone brick reddish purple with rare embedded quartz grains mudstone green rare.

880- 900 Equal amounts of above lithology.

900- 920 70% Mudstone brick reddish purple with rare embedded sand grains mudstone light gray green, mudstone green rare. 30% Sandstone light orange pink fine grained subrounded well sorted slight clay matrix, sandstone white fine to coarse grained subangular to subrounded poor sorting clay and silt matrix.

920- 960 60-70% Sands as above

Elog to top of Navajo at 940.

960- 1230 80% Sandstone white fine grained subrounded well sorted; silty matrix in part and quite friable in part. 20% Shales as above.

Introduction of black shale at 1110.

1230-1240 65% Sands as above. 35% Shale as above with increase in mudstone red.

1240-1250 80% Sands as above. 20% Shales as above.

1250-1260 60% Sand fine to coarse loose. 40% Shale black, mudstone gray silty in addition to the shales as above.

1260-1270 Equal amounts of the above lithologies.

1270-1300	60-75% Shales as above. 40-25% Sands as above.
1300-1310	60% mudstone brick red with rare pods of mudstone green attached, shale dark gray to black. 40% Sandstone pink fine grained, subrounded good sorting sandstone white fine grained subrounded good sorting.
1310-1320	Equal amounts of the above lithologies.
1320-1330	60% Sands as above. 40% Shales as above.
1330-1400	90% Sands as above. 10% Shales as above.
1400-1500	No samples.
1500-1580	80-90% Shale red and mudstone purple with light lavender streaks in part mudstone light green, shale black and gray rare siltstone pink-1520 increases mudstone purple. 10-20% Sandstone white fine grained subrounded, well sorted, sandstone pink fine grained subrounded well sorted-1530 introduction of sandstone lavender medium grained subangular to subrounded fair sorting.
1500	Elog and sample top of Kayenta.
1580-1590	60% Shales as above. 40% Sands as above. Rare Aragonite Crystals.
1590-1600	No sample
1600-1620	50% Shale as above. 50% Sands as above in addition coarse fragments of freshly broken quartz and chert rare-Calcite crystals rare.
1620-1630	50% Shale as above. 50% Sands as above. Anhydrite rare.
1630-1640	50% Shale as above. 50% Sands as above in addition micro-conglomerate of very fine sandstone matrix with very coarse and small pebble size quartz grains embedded in it. Anhydrite rare.
1640-1660	60-65% Sand as above, increasing amounts of loose sand. 35-40% Shale as above. Anhydrite rare.
1660-1670	65% Shales as above. 35% Sands as above, in addition sandstone white mottled gray fine to medium grained subangular to subrounded fair sorting.
1670-1690	70% Sands as above; increased amounts of loose sand. 30% Shale as above. Anhydrite rare.
1680	Elog top Jurassic Wingate.

1690-1700 50% Shales as above. 50% Sands as above in addition sandstone light pink to white fine grained, subrounded, well sorted.

1700-1710 65% Sands as above plus the introduction of sandstone pinkish orange fine to medium grained subangular to subrounded poor sorting clay and silt matrix (possible Wingate?) It is to be noted that from 1710 down the samples are predominantly shales. No distinct Wingate top could be found in the samples. The Wingate sands may be so friable that they wash away during cleaning up of the samples. 35% Shales as above.

1710-1720 60% Shales as above. ie. (Shale red and brick red, mudstone purple, claystone light gray green rare.) 40% Sands as above.

1720-1740 85% Shales as above. 15% Sands as above.

1740-1750 55% Shales as above. 45% Sands as above.

1750-1820 75-90% Shales as above. 25-10% Sands as above plus the introduction of sandstone orange pink medium grained subrounded good sorting silty matrix (Wingate?)

1820-1980 75-90% Shales as above in addition siltstone red. 10-25% sands as above plus an increase of loose sand.

1980-1990 65% Shale brick red brown, mudstone brownish purple, mudstone gray green rare. 35% Sandstone purplish pink to light pinkish orange, very fine to fine grained with rare coarse angular grains embedded poor sorting silty matrix.

1990-2000 Equal amounts of the above lithologies.

2000-2050 60-80% Sands as above plus the addition of rare sandstone white fine grained subrounded good sorting

2050-2100 70-80% Sand as above. 20-30% Shale as above with an increase in the ratio of mudstone brownish purple plus the addition of rare mudstone light green rare.

2100-2110 50% Mudstone brownish purple, mudstone purple, shale red rare. 50% Sands as above.

Elog top Chinle 2110

2110-2120 60% Sands as above. 40% Shales as above.

2120-2170 60-85% Shales as above. 40-15% Sands as above.

Sample top Chinle 2120.

2170-2180 85% Shale as above plus the addition of siltstone rare. 15% Sands as above.



2180-2200	95% Shale red, siltstone red mudstone purple rare. 5% sands as above.
2200-2300	No samples.
2300-2310	99% Siltstone red, shale red slightly calcareous. Mudstone dark reddish purple. Mudstone green rare. 1% Sandstone whitish green fine grained, subrounded, well sorted.
2310-2350	99% Siltstone red, shale red slightly calcareous, mudstone reddish purple, siltstone light orange, mudstone green rare. 1% Sands as above.
2350-2370	100% Shales as above.
2370-2390	100% Mudstone reddish purple, shale red siltstone red, calcareous, siltstone light orange.
2390-2400	No sample.
2400-2450	100% Shale as above.
2450-2490	100% Shale red, siltstone, red, calcareous mudstone reddish purple.
2490-2530	100% Mudstone reddish purple to purple shale red mudstone red, shale green rare.
2530-2550	100% Shale red, mudstone red, mudstone purple
2550-2580	90% Shales as above becoming calcareous. 5% Sandstone white, fine grained subrounded well sorted; sandstone white mottled gray and green. Fine to medium grained subangular to subrounded. 5% Limestone white and green mottled with green and red in part, finely sucrossic appears weathered in part.
2580-2650	85% Shales as above. 15% Limestones as above.
2650-2680	60% Shales as above. 35% Sandstone mottled white and gray, fine grained subangular fair to poor sorting with shale particles embedded. Sandstone white very fine grained subrounded well sorted plus very coarse loose sand grains. 5% Limestones as above plus rare anhydrite inclusions.
2680-2750	60% Pebbles and very coarse sand freshly broken angular, quartz and chert, sandstone mottled whitish gray fine grained, subangular fair to poor sorting with shale inclusions sandstone white very fine grained subrounded well sorted. 40% Shales as above. 10% Limestones and rare anhydrite as above.
2680	Elog and sample top of Shinarump.
2745	Elog top Moenkopi.
2750-2770	85% Mudstone purple, shale red, siltstone red calcareous in part. 15% Sands as above.
2750	Sample top Moenkopi.

2770-2780 90% Shales as above plus mudstone green rare. 10% Sands as above. Anhydrite rare.

2780-2790 100% Shales as above

2790-2800 90% Shale red mudstone gray, mudstone green rare mudstone purple. 10% Sand grains coarse loose trace limestone whitish green massive cryptocrystalline.

2800-2890 90% Shales as above. 10% Sand grains coarse quartz and chert loose, sandstone white fine grained, subrounded, well sorted.

2890-2900 100% Shales as above with an increase in mudstone green.

2900-2910 100% Mudstone purple, shale red, siltstone red, mudstone gray, mudstone green.

2910-2920 90% Shales as above. 10% Sandstone very fine grained, subrounded, well sorted, sandstone whitish green fine grained subrounded well sorted.

2920-2930 90% Shales as above. 10% Sands as above plus the introduction to the samples of sandstone orange, very fine grained micaceous silty.

2930-2940 90% Shales as above. 10% Sands as above plus sandstone coarse angular fair sorting.

2940-2980 60-75% Shales as above. 25-40% Sands as above.

2980-3010 60-75% Shales as above with an increase in the mudstone purple. 25-40% Sands as above.

3010-3050 80-90% Shales as above. 10-20% Sands as above.

3050-3090 95% Shale gray, mudstone purple shale red, mudstone red mudstone light gray, mudstone green. 15% Sands as above.

3050 Elog top Permian Cutler De Chelly. No De Chelly sample break recognized.

3090-3110 99% Shales as above. 1% Sands as above with rare loose grains. Trace of Limestone white at 3100.

3110-3120 90% Shales as above. 10% Loose grains, sandstone white fine grained, subrounded, well sorted sandstone white very coarse grained angular.

3120-3130 90% Shales as above plus mudstone light gray green. 10% Sands as above.

3130-3140 90% Shales as above. 10% Sands as above trace Limestone white cryptograined massive.

3140-3150 85% Shales as above. 15% Very coarse grains of rounded quartz and angular chert fragments. Anhydrite rare.

3150-3160 85% Shale as above. 15% Sands as above plus sandstone white mottled gray, very coarse grained, angular.

3160-3180 80% Shales as above. 20% Sands as above plus sandstone white very fine grained subrounded, well sorted.

3180-3210 80% Shale as above. 20% Sands as above plus the introduction of Sandstone reddish orange fine to medium grained rounded, fair sorting (this sand may be only representation of the De Chelly sandstone).

3180 Elog top of Organ Rock.

3210-3280 85-95 % Shales as above plus the introduction of siltstone. Light pinkish orange. 5-15% Sands as above.

3210 Sample top Organ Rock.

3280-3400 99% Shales as above. 1% Loose very coarse grains quartz sandstone white fine to medium ground well sorted.

3400-3490 95% Siltstone orange red limy cement mudstone purple, shale light gray to gray, mudstone gray green to green, (cutting size change-from 0.1 in. angular to 0.2 to 0.5 in. rounded) trace sandstone orange very coarse grained well rounded good sorting.

3490-3500 100% Mudstone purple; shale brick red mudstone reddish orange, mudstone gray and light gray (Change to small cuttings.)

3500-3520 100% as 3400-90 with large cuttings.

3520-3530 Change in drilling chip to small again. 90% Shale brick red, mudstone purple siltstone reddish orange being shale purple. 7% Sandstone reddish orange very fine grained well rounded good sorting calcareous cement.

3530-3540 Bit change sample not representative.

3540-3550 98% Shales as before plus mudstone green. 2% Sands as before.

3550-3560 100% Shales as before. Trace anhydrite.

3560-3570 95% Shales as above. 5% Sandstone whitish green fine grained well sorted. Trace anhydrite.

3570-3610 95% Shales as above. 5% Sands as above plus coarse loose quartz grains trace of Limestone white weathered at 3580.

3610-3620 95% Shale as above. 3% Limestone pink, black and white cryptograined. 2% Sands as above.

3620-3630 90% Shales as above. 5% Limestone as above. 5% Sands as above.

3630-3640 90% Shales as above. 10% Sands as above.

3640-3700 100% Siltstone red, shale brick red-mudstone red; purple; gray (large size rounded chips)

3700-3710 90% Shales as above plus siltstone red orange. 10% Sandstone reddish purple very fine to fine grained subrounded to sub-angular fair sorting sandstone white very fine grained sub-rounded well sorted.

3700 Elog top Cutler evaporites.

3710-3770 90-95% Shales as above. 5-10% Sands as above. Trace to 2% anhydrite loose chips and embedded in shales.

3770-3790 95% Shales as above. 5% Sands as above plus sandstone white coarse grained angular to subangular poor sorting. Anhydrite and limestone purple nodular rare.

3790-3810 80-90% Shales as above (small cutting chip) 5-15% Sands as above. 3% Anhydrite

3810-3820 85% Shales as above. 10% Sands as above. 5% Anhydrite.

3820-3840 85-90% Shales as above. 10-15% Sands as above. Trace of anhydrite and limestone black massive. Microcrystalline.

3840-3890 80% Shales as above. 20% Sands as above plus sandstone orange red very fine grained silty trace anhydrite and limestone as above.

3890-3900 Poor sample

3900-3910 95% Shales as above. 5% Sands as above.

3910-3920 100% Shales as above. Trace anhydrite.

3920-3930 90% Shales as above. 10% Sands as above plus micro conglomerate-black limestone pebbles well rounded in a matrix of very fine grained white sandstone with calcareous cement.

3930-3970 90% Shales as above. 10% Sandstone white fine grained sub-rounded well sorted trace anhydrite, trace limestone black cryptocrystalline.

3970-3980 95% Shales as above. 5% Limestone, black cryptocrystalline limestone nodules trace anhydrite

3980-3990 90% Shales as above. 10% Sands as above plus sandstone white mottled gray medium to coarse grained angular to subrounded poor sorting; sandstone white with a greenish cast fine to medium grained subrounded fair sorting. Trace anhydrite, trace of limestones as above.

3990-4000 90% Shales as above. 10% Sands as above. Trace limestones, trace anhydrite.

4000-4010 100% Shales as above trace sands as above trace limestone as above.

4010-4020 80% Siltstone red limy, shale red limy, mudstone brick red mudstone purple and reddish purple. 20% Sandstone white and white with green tint, fine grained rounded to subrounded, well sorted, calcareous cement, silty.

4020-4040 60% Shales as above. 40% Sands as above.

4040-4050 65% Shales as above. 35% Sands as above and sandstone white mottled gray medium-coarse grained, angular, to subrounded poor sorting.

4050-4060 90% Shales as above. 10% Sands as above. Anhydrite trace.

4060-4120 100% Shales as above plus shale and mudstone dark gray to black. Trace anhydrite and sands as above.

4120-4190 90% Mudstone purple and brownish purple mudstone red, siltstone brownish red very calcareous, mudstone gray green. 10% limestones as above.

4190-4200 90% Shales as above with increase in mudstones and shale gray and green. 10% Limestones as above plus limestone gray. Crypto grained massive argillaceous.

4200-4230 No samples.

4230-4240 85% Shales as above. 15% Sandstone light greenish gray fine grained subrounded well sorted sandstone white medium grained subangular to subrounded fair sorting calcareous cement, sandstone white medium to coarse grained angular to subrounded poor sorting sandstone, light grayish white very fine grained, rounded to subrounded well sorted. Traces of limestone gray, crypto grained argillaceous.

4240-4250 90% Shales as above. 7% Limestone as above. 3% Sandstones as above.

4250-4260 85% Shales as above. 12% Sandstone as above. 3% Limestone as above. Trace anhydrite.

4260-4280 65% Shales as above. 30% Sandstones as above. 5% Limestones as above plus limestone black crypto-crystalline. Anhydrite trace.

4280-4310 85% Shales as above. 10% Sandstone as above. 5% Limestones as above. Trace anhydrite.

4310-4320 85% Shales as above. 10% Limestone gray crypto-grained massive argillaceous, limestone light green finely sucrossic, limestone black crypto crystalline. 5% sands as above.

4320-4340 85% Shales as above. 10% Sands as above. 5% limestone as above at 4320 pyrite crystals embedded in black limestone. Trace anhydrite.

4340-4400 100% Shales as above. Traces of sands and limestones and anhydrite at 4380 limestone purple reddish, crypto crystalline.

4400-4430 Poor sample.

4430-4450 95% Shales as above. 5% Sands as above. Trace of limestone fragments.

4450-4460 Poor sample.

4460-4490 90% Shales as above plus siltstone dark brown micaceous and shale black calcareous. 5% Sands as above. 5% limestone as above. Trace anhydrite.

4490-4500 85% Shales as above. 10% Sands as above. 5% Limestone black crypto grained argillaceous massive.

4500-4520 90% Mudstone red and reddish purple. Mudstone purple, shale red calcareous, mudstone light gray to dark gray, shale black calcareous. 7% Limestone gray cryptograined nodular in part. 3% Sandstone as above.

4520-4590 60% Shales as above. 30% Sandstone white fine grained well rounded to subrounded well sorted. Sandstone red to reddish purple fine grained subrounded well sorted, sandstone green very fine grained micaceous silty. 10% Limestone white and gray massive cryptocrystalline, black cryptograined argillaceous, gray cryptograined.

4590-4600 No sample.

4600-4610 60% Shales as above. 40% Limestone as above.

4620-4630 60% Shales as above. 30% Limestones as above. 10% Sands as above.

4630-4660 50% Limestones as above. 40% Shales as above. 10% Sands as above.

4660-4690 80% Shales as above. 20% Limestones as above.

4690-4700 50% Shales as above. 30% Limestones as above. 10% Sands as above.

4700-4750 80% Limestone gray to dark gray crypto grained massive, Limestone dark gray to black cryptograined massive argillaceous, limestone black crypto crystalline massive. 20% Shales red, shale purple, shale black calcareous micaceous in part.

4750-4780 50-60% Limestone as above. 40-50% Shales as above plus shale black dense calcareous.

4780-4810 70-80% Limestone as above. 20-30% Shales as above. Increase in amount of black shale.

4810-4830 60% Limestones as above. 40% Shales as above.

4830-4870 70-80% Limestones as above. 20-30% Shales as above.

4870-4880 60% Limestones as above. 40% Shales as above.

4880-4890 60% Shales as above. 40% Limestones as above.

4890-4910 75% Limestones as above more dark gray to black. 25% Shales as above.

4895 Elog top Hermosa. No distinct sample break.

4910-4920 80% Shales as above. 20% Limestones as above.

4920-4940 60% Shales as above. 40% Limestones as above.

4940-4960 Equal amounts of the above lithologic groups.

4960-4970 60% Shales as above. 40% Limestones as above.

4970-4980 60% Limestones as above. 40% Shales as above.

4980-5000 Equal amounts of above lithologies.

5000-5030 60-75% Shales as above. 25-40% Limestones as above.

5030-5050 70% Limestones as above. 30% Shales as above.

5050-5060 70% Shales as above. 30% Limestones as above.

5060-5070 Equal amounts of above lithologies.

5070-5120 70-80% Limestones as above. 20-30% Shales as above.

5120-5130 60% Limestones as above. 40% Shales as above.

5130-5140 No sample.

5140-5160 70% Shales as above. 30% Limestones as above

5160-5180 75-85% Shales as above. 15-25% Limestones as above.

5180- 5220	45-50% Shale as above. 50%-45% Limestone as above.
5220-5240	70% Shales as above. 30% Limestone as above.
5240-5260	90% Shales as above. 10% Limestones as above.
5260-5270	60% Shales as above. 40% Limestones as above.
5270-5280	90% Shales as above. 10% Limestones as above.
5280-5300	70% Shales as above. 30% Limestones as above.
5300-5320	60% Limestones as above. 40% Shales as above
5320-5330	70% Shales as above. 30% Limestones as above.
5330-5340	60% Limestone light gray to gray cryptograined, massive, limestone dark gray to black crypsto grained argillaceous. 40% Shales as above.
5340-5370	80% Limestone as above. 20% Shales as above.
5370-5390	60% Shales as above. 40% Limestone as above.
5390-5410	60% Limestone as above. 40% Shale as above.
5410-5480	70-80% Limestone as above. 20-30% Shale as above.
5480-5490	Equal amounts of above lithologic units with increase of black shales and limes.
5490-5520	70-80% Shales mostly black. 20-30% Limestones as above.
5520-5620	60-70% Limestone as above. 30-40% Shales as above. No sample at 5530. Change in drilling chip size to very fine at 5540.
5630-5640	No sample
5634	Cored interval see detail.
5758	Core descriptions.
5750-5760	60% Limestone as above primarily black argillaceous. 40% Shales primarily black calcareous.
5760-5770	70% Shale as above. 30% Limestone as above.
5770-5780	70% Limestones. 30% Shale.
5780-5800	Equal amounts of limestone and shale.
5800-5830	80% Shale as above. 20% Limestone as above.
5825	Top Bluff (A)
5830-5840	60% Shale. 40% Limestone.
5840-5910	70% Limestone equal amounts of light gray and black limestone.



5840-5910 cont. 10% Shales as above.

5900-5936 Cored-see detail core description.

5935-5970 60-75% Limestone as above. 25-40% Shales black calcareous.

5970-6005 90% Limestone as above increase in light gray limestone.  
10% Shale as above.

6005-6020 50-60% Limestone increase in black argillaceous. 40-50%  
Shale black calcareous.

6020-6050 80-95% Shale as above. 5-20% Limestone as above.

6050-6060 90% Shales as above. 10% Limestone as above pull the intro-  
duction of limestone gray to gray black finely sucrossic.

6060-6070 60% Limestone as above. 40% Shale as above.

6070-6090 70-90% Anhydrite (poor samples

6055 Elog top Desert Creek

6090-6110 40% Limestone as above. 30% Anhydrite. 30% Shale as above.

6110-6130 Samples poor because of anhydrite.

6130-6140 70% Limestone light gray to gray finely sucrossic plus limes  
as above. 30% Shale black silty micaceous.

6135 Elog top Paradox shale.

6040-6050 60% Shale black sooty looking soft. 40% Limestone as above.

6040 Sample top Paradox shale.

6050-6075 80-90% Shale as above. 10-20% Limestone as above.

Sample Description

G. C. Brown